

IN THE CLAIMS

1. (cancelled)
2. (currently amended) The computer-implemented process of Claim [[1]] 10 further comprising the process action of:
applying texture of the object in the image to the tailored generic model.
3. (currently amended) The computer-implemented process of Claim [[1]] 10, further comprising the process actions of:
determining if the object in the image is rotated out of the plane of the image prior to using the features of the object in the image to align the features of a generic model of the object with the features of the object in the image to obtain a tailored model;
determining the amount of out of plane rotation of the object in the image; and
using the amount of rotation of the object in the image to rotate the generic model to match the input image.
4. (currently amended) The computer-implemented process of Claim [[1]] 10 wherein the process action of determining the features of the object comprises determining the features by at least one of the following:
using a pattern recognition technique to locate the features;
an edge detection technique to locate the features; and
using a generic model of the object to locate the features.
5. (currently amended) The computer-implemented process of Claim [[1]] 10 wherein the generic model of the object is represented as a linear combination of a neutral object, and some number of object metrics, wherein an object metric is a vector that linearly deforms the object in a certain way.

6. (currently amended) The computer-implemented process of Claim [[4]] 10 wherein the linear combination of a neutral object is represented by a mesh of vertices and triangles that represent the shape of the object.

7. (currently amended) The computer-implemented process of Claim [[4]] 10 wherein the process action of aligning the feature of a generic model of the object to the features of the object in the image to obtain a tailored model comprises modifying the object metrics so that the generic model matches the shape of the object in the image.

8. (cancelled)

9. (cancelled)

10. (currently amended) The computer-implemented process of Claim 1 A computer-implemented process for generating a three dimensional model of an object from a single image, comprising the process actions of:

obtaining an image of an object;

identifying at least one object to be modeled in the image, wherein the object modeled is an animal;

determining features of the object in the image; and

aligning the features of a generic model of the identified object with the features of the object in the image to obtain a tailored model.

11. (currently amended) The computer-implemented process of Claim [[1]] 10 wherein multiple objects are modeled by repeating the following process actions for more than one object:

identifying at least one object to be modeled in the image;

determining features of the object in the image; and

aligning the features of a generic model of the identified object with the features

of the object in the image to obtain a tailored model.

12. (cancelled)

13. (currently amended) The system of Claim [[12]] 16 further comprising modules to:

determine if the face in the image is rotated out of the plane of the image prior to using the features of the face in the image to align the features of a generic face model with the features of the face;

determine the amount of out of plane rotation of the face in the image; and

use the amount of rotation of the face in the image to rotate the generic face model to match the face in the input image.

14. (cancelled)

15. (cancelled)

16. (currently amended) The system of Claim 15 wherein A system for creating a face model from the input of a single image of a face, the system comprising:
a general purpose computing device; and
a computer program comprising program modules executable by the computing device, wherein the computing device is directed by the program modules of the computer program to,

input a single image of a face;

use a face detector to find the face to be modeled in the image;

determine features of the face to be modeled;

align features of a generic face model to features of the face in the image to obtain a tailored face model, wherein the generic model of a face is represented as a linear combination of a neutral face, and some number of face metrics, wherein a face metric is a vector that can linearly deform the neutral face model in a certain way and

wherein and a the generic model of a face is represented by a vector S $=(v_1^T, \dots, v_n^T)^T$ where $v_i = (X_i, Y_i, Z_i)^T$ ($i = 1, \dots, n$) are the vertices, and a metric is represented by a vector $M = (\delta v_1, \dots, \delta v_n)^T$, where $\delta v_i = (\delta X_i, \delta Y_i, \delta Z_i)^T$.and wherein a neutral face $S^0 = (v_1^{0T}, \dots, v_n^{0T})^T$, and a set of m metrics $M^j = (\delta v_1^{jT}, \dots, \delta v_n^{jT})^T$, and wherein the linear space of face geometries spanned by these metrics is

$$S = S^0 + \sum_{j=1}^m c_j M^j \text{ subject to } c_j \in [l_j, u_j]$$

where the c_j 's are the metric coefficients, and l_j and u_j are the valid range of c_j ; and

apply the texture of the face in the image to the tailored generic face model.

17. (currently amended) The system of Claim [[15]] 16 wherein the linear combination of a neutral face is represented by a mesh of vertices and triangles that represent the shape of the face.

18. (currently amended) The system of Claim [[15]] 16 wherein using the features of the object to be modeled to align the features of a generic face model to the feature points of the face in the image comprises modifying the face metrics so that the generic face model matches the shape of the face in the image.

19. (cancelled)

20. (currently amended) The system of Claim 19 wherein modifying the metrics comprises:

A system for creating a face model from the input of a single image of a face, the system comprising:

a general purpose computing device; and

a computer program comprising program modules executable by the computing

device, wherein the computing device is directed by the program modules of the computer program to,

input a single image of a face;

use a face detector to find the face to be modeled in the image;

determine features of the face to be modeled;

align features of a generic face model to features of the face in the image

to obtain a tailored face model, wherein the generic model of a face is represented as a linear combination of a neutral face, and some number of face metrics, and wherein a face metric is a vector that can linearly deform the neutral face model in a certain way, and wherein using the features of the face to be modeled to align the features of a generic face model to the features of the face in the image comprises modifying the face metrics so that the generic face model matches the shape of the face in the image, and wherein modifying the metrics comprises:

calculating the differences between the generic face model and the face in the image; and

adjusting the generic face model to represent the face in the image by using said calculated differences to adjust the generic face model; and

apply the texture of the face in the image to the tailored generic face model.

21. (currently amended) The system of Claim 17 A system for creating a face model from the input of a single image of a face, the system comprising:

a general purpose computing device; and

a computer program comprising program modules executable by the computing device, wherein the computing device is directed by the program modules of the computer program to,

input a single image of a face;

use a face detector to find the face to be modeled in the image;

determine features of the face to be modeled;

align features of a generic face model to features of the face in the image

to obtain a tailored face model, wherein the generic model of a face is represented as

a linear combination of a neutral face, and some number of face metrics, wherein a face metric is a vector that can linearly deform the neutral face model in a certain way, and wherein the linear combination of a neutral face is represented by a mesh of vertices and triangles that represent the shape of the face; and

apply the texture of the face in the image to the tailored generic face model, wherein the module for applying texture comprises:

associating each vertex on the generic face model with its coordinates in the image; and

using said associated coordinates of the vertices with the image to apply said texture of the original image.

22. (cancelled)

23. (cancelled)

24. (cancelled)